SECTION 100.00- TRAFFIC STUDIES

SECTION 101.00- ACCIDENT REPORTS

101.01 General. Accident data is one of the basic tools in the traffic engineering field, and any work associated with this data or its use is a primary function of traffic engineering. The accident reports furnish an important part of the basic information for budgeting, planning and design of highway improvements. They point out critical locations on the highway system and areas of operational difficulties and provide clues to needed highway improvements.

The constant surveillance of accidents on the state highway system and initiation of corrective measures to reduce and eliminate their occurrence is one of the most important district traffic engineering functions. The districts are encouraged to direct increased attention to accidents and corrective measures for their reduction on the state highway system. The districts also are encouraged to maintain effective communications with the Idaho State Police, county sheriffs, and city police relative to accident occurrence, enforcement, and planned improvements in their jurisdictions.

101.02 Accident Listings. A report listing accidents at a particular location on the state highway system is available through the Office of Highway Safety. If requested, this report will be sent for information and use in accident analysis. The accident listing report can also be obtained directly from the computerized accident records database through the district computer terminal. The listing should generally include three or more years of accidents for any specific location. The data should be carefully reviewed by the District Traffic Engineer, with locations or areas having numerous accidents noted for field review. A field review of the accident data in relation to traffic operations, roadway features, and traffic control devices will generally point out where appropriate corrective measures are needed. A permanent file of accident listings should be maintained by the district for future reference relative to liability claims.

101.03 Accuracy Of Accident Reporting. The credibility of the information obtained from accident records is dependent on the accuracy of the officers' accident reports. Therefore, it is important that the District Traffic Engineer work closely with the state police and other local law enforcement personnel so they understand the necessity of accurately reporting accident locations and complete accident data.

An explanation of the milepost system used to mark the highways, together with a copy of the Milepost Log, would be helpful to the agencies reporting accidents. It is suggested that the direction of milepost sequence and necessity for recording the distance from the lowest milepost number to the accident location be clarified. Referencing the accidents in relation to some prominent geographical feature such as a bridge, stream, city street intersection, etc., will also assist in properly coding the accident location.

Make a determined and continuing effort to get the best possible accident reporting from local city and law enforcement officials, particularly on the state highway system. Encourage and assist them in utilizing this information for selective enforcement, planning improvements, and evaluating design or operational changes.

101.04 High Accident Location Study. The Office of Highway Safety will develop and distribute to each District Traffic Engineer an annual list of high-accident locations (HAL), for purposes of analysis and corrective action. Following distribution of the HAL list, each district will be asked to participate in a field review of their listed locations, together with Headquarters Traffic Section personnel and Office of Highway Safety personnel.

Headquarters Traffic will prepare a report documenting the field review and recommendations for corrective action, including:

- A description of the location, including photographs and other supporting documentation.

- An accident history showing the number and type of accidents for the preceding years (ordinarily three to five years). The history should include the injury and fatality rates and the prevalent accident type and should point out specific accident problems.

- An accident analysis indicating the type of accidents and the driving conditions attending them. The analysis should correlate with the documented need for recommended improvements.

The District Traffic Engineer should then use the information from the report to prepare the following to be used in programming projects:

- Recommendations for improving the roadway conditions, including a suggested means of accomplishing the work, whether by state forces or by contract as betterment or major construction. The recommendations should include the cost of various improvement alternates and the planned construction year.

- Prepare a forecast of the potential reduction in accidents resulting from the planned improvements and a benefit/cost analysis of the project. Form ITD-2658 can be used to facilitate the potential accident reduction evaluation.

If it is determined that highway conditions were not a contributing cause to the accidents, or there are no feasible improvements that can be made, the district should indicate this. The effectiveness of any improvements shall be determined by "before and after" accident studies prepared cooperatively by the districts and the Office of Highway Safety.

If a project or improvement has already been completed at the location, so indicate in the comments.

The report of district action is needed by Headquarters Traffic for coordination of safety reports, assistance with recommended improvements, and review of project programming action.

101.05 Fatal Accident Investigation. The Idaho Transportation Department cooperates with the National Highway Traffic Safety Administration (NHTSA) in collection of data relative to fatal highway accidents on all Idaho highways under the Fatal Accidents Reporting System (FARS). The data is used to analyze the highway accident problems in Idaho and on a national level. The Officer's Report form provides the necessary data, but the district may be contacted to supplement available information.

101.05.01 Office of Highway Safety Responsibilities.

- Forward Officer's Report on fatal accidents to the district and Headquarters Traffic Section after receipt from the Department of Law Enforcement.
- Review Idaho fatality data for recommended action to reduce causation factors.
- Manage Idaho Fatal Accident Records System for NHTSA with cooperation from other state agencies.
- Update and maintain the Safety Evaluation Manual and related software.
- Prepare Before and After Studies.

101.05.02 District Responsibilities.

- Review field location, accident history, and other pertinent data on each highway fatality on the state highway system.
- Maintain a record at the district for future reference.

101.06 Traffic Hazard Investigation. Section 49-1315, Idaho Code, requires the Idaho Transportation Department to investigate physical traffic hazards at the request of the investigating enforcement officer or presiding judicial officer. The Headquarters Traffic Engineer must investigate the alleged hazard and submit a report to the requesting officer and the board of county commissioners of the county in which the accident occurred within 60 days of the written request.

The Traffic Hazard Investigation Report shall describe the hazard and the proposed action or corrective action to remove the hazard, or the report shall discuss why no action has been taken or is anticipated. Only those alleged hazards involving the state highway system where an investigation is officially requested need to be studied by the Department.

101.06.01 Headquarters Traffic Section will:

- Immediately upon receipt, forward a written statement from the enforcement officer or presiding judicial officer to the district, with a copy of the accident reports and supplemental data.
- Assist the districts with preparation of a written report to the officials after completion of field analysis.

101.06.02 The District will:

- Forward a written report on its investigation of an alleged traffic hazard no later than 30 days following receipt of the request from the Headquarters Traffic Section.
- Maintain files and statistical records on traffic hazard investigations.

101.07 Before-And-After Studies. The Office of Highway Safety administers a program that makes before-and-after accident studies on project improvements. The program compiles collision frequency and traffic volume data relative to roadway and roadside improvements. The results of these studies are reported annually to the Federal Highway Administration.

101.08 Safety Improvement Studies. ITD accomplishes a variety of safety improvement work on the state highway system both with federal and state funds. Because these funds are limited, it is important that they be spent on improvements which have proven to be the most cost-effective in providing safe and efficient vehicular travel. Thus, safety cost-effectiveness analysis is an important step in the highway improvement process. Good analysis can be accomplished only by using complete and accurate reports of improvement projects.

District project programming requests are required to include a safety evaluation, form ITD-2658, for all STP safety projects and other projects that contain locations on the HAL listing. A copy of this form, i.e., forecasted accident reduction of the proposed improvement, is used by the Office of Highway Safety for "before-and-after" accident analysis of the improvement

The Office of Highway Safety will evaluate all highway safety improvement projects after the work has been completed. A reasonable time following work completion will be used so the "after" safety benefits can be measured.

In addition to safety improvement projects, a safety evaluation should be completed by the Office of Highway Safety for other highway improvements including, but not limited to, major realignments, overlays, shoulder improvements, signal modifications, and signing. This will help in evaluating the safety effects of many traditionally "non-safety" projects, as well as establishing a more complete system to identify highway changes which can influence the evaluation of safety projects occurring at or close to the same location.

ITD-2658 6-92

SAFETY EVALUATION

I. PROJECT DATA

	DISTRICT	ROUTE	SEG CODE	B.M.P.	E.M.P.	LENGTH	AADT	TYPE RDWY
EXIST. RDWY								

LOCATION	PROPOSED IMPROVEMENT			
	LIFE	COST(1000) CONST	R/W	TOTAL
IMPROVEMENT				

II. ACCIDENT SUMMARY - SIGNIFICANCE

MO.	YR.	TOTAL	FATAL	INJURY	I + F	PDO	SV	MV	WET	DRY		
TOTAL--------												

AVE. SEVERITY % FOR THIS ROAD TYPE----------		
EXPECTED I+F AND PDO ACCIDENTS ----------		
DIFFERENCE (DEVIATION FROM EXPECTED)---------		
STATISTICALLY SIGNIFICANT ?----------		
CONFIDENCE LEVEL ----------		

☐ SPOT INTERSECTION (INCLUDE X STREET)
☐ SPOT NON-INTERSECTION
☐ SEGMENT (ALL ACCIDENTS)

III. TRAFFIC DATA

1	2	3	4	5	6	7	8	9	10	11	12
AADT (1000)					TOTAL NO. OF			TOTAL TRAVEL			
			CROSS	VCF			ACC/YR	MV/YR	MVM/YR	ACC/MV	ACC/MVM
PRES.	FUT.	AVE.	STREET	(3÷1)	YEARS	ACC.	(7 ÷ 6)	.365(1+4)	(9XMI.)	(8 ÷ 9)	(8 ÷ 10)

IV. REDUCTION FACTOR

1	2	3	4	5	6
ACC/MV(M)	R.F.	BASE RATE ACC/MV(M)	EXPECTED ACC/MV(M)	D.R. MV(M) 1-(>3 OR 4)	CALC. R.F. (5 ÷ 1)

V. SAFETY INDEX CALCULATION (METHOD I)

1	2		3	4	5	6	7	8	9	10	11
	ACC.		BEFORE ACC. COST ($1000)								
	TYPE	NO.	COST	TOTAL							
	I+F				$/ACC.	ACC./YR	VCF	LIFE	1.00-CRF	$ BEFORE	$ AFTER
	PDO										
YES(+)											
YES(-)											
NO											

SAFETY INDEX = (BOX 10 - BOX 11) ÷ TOTAL COST =		÷	=
ANNUAL SAFETY BENEFIT = (BOX 10 - BOX 11) ÷ (BOX 8) =		÷	=$

COMPUTED BY:_____ DATE:_____ PROJECT NO.:_____

CHECKED BY:_____ DATE:_____ KEY NUMBER:_____

Figure 101.08-01 Safety Evaluation (ITD-2658) – Page 1

ITD-2658 6-92
(REVERSE SIDE)

SAFETY EVALUATION
-SUPPLEMENTAL-

VI. ACCIDENT COSTS (METHOD II)

1	2	3	4		5	6	7
	BEFORE ACCIDENTS				EXPECTED ACCIDENTS		
TYPE	NO.	COST	TOTAL		NO.	COST	TOTAL
I + F							
PDO							
TOTAL							

VII. SAFETY INDEX CALCULATION (METHOD II)

1	2	3	4	5	6	7
BEFORE	EXPECTED				BEFORE	EXPECTED
$/ACC	$/ACC	ACC/YR	VCF	LIFE	COST	COST
SAFETY INDEX = (BOX 6 - BOX 7) ÷ TOTAL COST =				÷	=	
ANNUAL SAFETY BENEFIT = (BOX 6 - BOX 7) ÷ (BOX 5) =				÷	=$	

COMMENTS:

Figure 101.08-02 Safety Evaluation (ITD-2658) – Page 2

SECTION 102.00- STOP AND YIELD SIGNS

102.01 General. All state highways, including the urban extensions, are designated as through roadways [Section 40-310(11), Idaho Code]. Stop signs shall be installed to face crossing traffic on arterials and major roadways except at intersections having warranted traffic signal installations and others whereupon the basis of a traffic and engineering investigation it is determined other control is safer, operationally better, and more desirable. A traffic and engineering investigation is the collection of all pertinent traffic data at a specific location, with an engineering analysis of the traffic operations and proposed changes.

Where two state highways intersect, a traffic and engineering investigation should be made to determine the type of traffic control, i.e., stop, yield, 4-way stop, or traffic signal, to be installed.

The Headquarters Traffic Section will approve all yield signs and 4-way stop signs on state highways prior to installation. A district submittal to the Traffic Section of intersection drawings or sketches, accompanied by supporting data and recommendations, is required to initiate the request.

It is necessary that district records be complete and current.

Stop signs on approaches to the state highway system are usually located on the state highway rights-of-way and, accordingly, are installed and maintained by ITD. Stop signs may also be installed at other intersections with state highways, such as alleys or shopping centers, where it has been determined that the erection of such signs is in the best interests of safety. Refer to section 155.01 for information on installation and maintenance of needed "Stop Ahead" signs on local road approaches to state highways.
Stop signs at railroad grade crossings are covered in section 851.02.

102.02 Legal Authority. The following sections of the Idaho Code pertain to stop and yield sign installation:

40-310(11) POWERS AND DUTIES -- STATE HIGHWAY SYSTEM. Designates main traveled state highways as through highways.

49-109(5) DEFINITIONS -- H. "Highway"

49-110(6) DEFINITIONS -- I. "Intersection"

49-202(25) DUTIES OF DEPARTMENT. Railroad grade crossings

49-208 POWERS OF LOCAL AUTHORITIES

49-212 AUTHORITY FOR STOP SIGNS AND YIELD SIGNS

49-642 VEHICLE ENTERING HIGHWAY

49-651 EMERGING FROM ALLEY, DRIVEWAY, OR BUILDING

49-720 STOPPING -- TURN AND STOP SIGNALS. Bicyclists

49-807 STOP SIGNS AND YIELD SIGNS

SECTION 103.00 - SPEED ZONING

103.01 Legal Authority. Authority for speed zoning is covered in the Idaho Code as follows:

49-201(4) DUTIES OF BOARD. Establishment of Speed Limits on State Highway System.

49-202(21) DUTIES OF DEPARTMENT Special Bridge Speed Limit

49-202(22) DUTIES OF DEPARTMENT Minimum Speed Limit

49-207(2)(3)(4) MUNICIPAL REGISTRATION PROHIBITED -- POWER TO ENACT REGULATORY ORDINANCES NOT ABOLISHED Speed Limits by Local Authorities

49-208 POWERS OF LOCAL AUTHORITIES Speed Limits by Local Authorities

49-654 BASIC RULE AND MAXIMUM SPEED LIMITS

49-657 CONSTRUCTION DANGER ZONE SPEED LIMITS

49-1005 SPECIAL REGULATIONS AND NOTICE Breakup Speed Limits

103.02 Speed Minute Entry. Approval of permanent speed zones and speed zones within bridge limits by the Idaho Transportation Department are handled by Traffic Minute Entries. Speed Minute Entries are Traffic Minute Entries for speed zones. Routine speed minute entries are prepared by the Traffic Section (Administrative Policy A-12-03). Non-routine changes to speed zones must be submitted to the Board as separate Board Agenda Items that are prepared by the appropriate District and submitted through the State Traffic Engineer. The "MINUTE ENTRY FOR SPEED CONTROL ZONES" form and the Board Agenda Item for speed zone changes are both recognized as official entries in department records or Traffic Minute Entries. The minute entry attests to the fact that a traffic and engineering investigation has been conducted and documented, and the speed zones are reasonable and sets forth the authorized maximum speed limits that apply on a specific section of highway.

Speed minute entries are prepared in consecutive route and milepost order, with a speed zone inventory log maintained indicating the current approved speeds on all highway routes. Speed limit changes are located by milepost reference. Also, convenient references such as geographical and topographical locations, county lines, and street names are contained in the description to facilitate speed minute entry administration.

When routine speed changes are proposed, the District Traffic Engineer shall prepare a graph of the site, recommendations for speed zone changes on a "Speed Distribution Chart (ITD-1625) or approved equal, and a "Speed Zoning Worksheet (ITD-1791). See Figures 103.02-01, 103.02-02 and 103.02-03. All documents shall be submitted to the Headquarters Traffic Section together with the signed and sealed supporting traffic and engineering investigation report. A completed speed minute entry must cover each direction of travel. As speed limit signs must be placed within 50 ft (15.2 m) of locations shown on the speed minute entry, the District should verify sign locations prior to setting speed zone limits.

Non-routine speed changes require document submittal identical to routine speed changes, plus a Board Agenda Item.

103.03 Speed Zoning Concepts. Speed zoning is a traffic engineering tool that has been employed for many years to try to influence motorist behavior. A wide variety of regulations and methods have been used to post speed limits; however, there is not a universally adopted procedure. Based on years of experience and observation, the following fundamental concepts have been used as guidelines in establishing realistic and reasonable speed zones:

- The majority of motorists drive at a speed they consider reasonable, convenient, and safe for existing conditions. Posted limits which are set higher or lower than dictated by roadway and traffic conditions are ignored by the majority of motorists.

- A speed limit should be set so that the majority of motorists observe it voluntarily and enforcement can be directed to the minority. That speed is considered the 85th percentile speed.

- Any speed limit is reasonable only for the roadway and traffic conditions for which it was set. Limits based on prevailing speeds of free-flowing vehicles obtained during good weather will be unreasonably high for extreme weather and traffic conditions.

- Accident severity increases with increasing speeds because, in a collision, the amount of kinetic energy dissipated is proportionate to the square of the velocity. The number of accidents, however, appears to depend less on speed and more on the variation in speeds. The lowest accident involvement rate occurs when vehicles are traveling one standard deviation above the mean speed, which is approximately equivalent to the 85th percentile speed or slightly above.

Speed zones established on the basis of the above-listed concepts using a realistic traffic engineering analysis have the following benefits:

- Provide a factual, scientific basis for determining limits.

- Invite public compliance by conforming to the behavior of the majority of motorists.

- Give enforcement officials a good guide as to what is a reasonable and prudent speed.

- Assist traffic courts by providing a list of established speed limits.

- Ensure that speed zones satisfy the requirements and intent of state and/or local laws and ordinances.

- Encourage motorists to drive at or near the same speed, resulting in smoother flow and a reduction in accident risk.

The 85th percentile speed is the speed at or below which 85 percent of the vehicles are moving. On most roadways, the 85th percentile speed is one standard deviation, or approximately 6 to 8 mph above the average speed. The major reasons for using the 85th percentile speeds in establishing maximum speed limits are as follows:

- Widespread use and acceptance of the method by traffic professionals.

- The probability of accident occurrence is lowest for vehicles traveling at or slightly above the 85th percentile speed.

- The 85th percentile speed reflects a safe speed for existing conditions as perceived by the majority of motorists and is largely self-enforcing.

- When using the method, other factors such as accident rates, geometric features, etc., do not have to be considered separately or in combination with other data since the factors are reflected in the driver's choice of speed, which is altered to adjust for these conditions.

- Speed samples are easy to obtain and analyze for most roadways.

The pace speed is the 10-mile-per-hour speed range that contains the largest percentage of vehicles. A normal speed distribution contains approximately 70 percent of the vehicles within the pace, with approximately 15 percent of the vehicles below and 1 percent above the limits of the pace speed. The upper limit of the pace speed has been used as a criterion for establishing the maximum speed limit. However, the upper limit of the pace speed may vary from the 85th percentile speed, depending on the distribution curve of the vehicle speeds.

It is necessary that the speed distribution curve be studied and variations between the pace speed and 85th percentile speed be analyzed carefully when using the pace speed to establish maximum speed limits. The top of the pace speed is used when there is a high percentage of vehicles within the pace speed and the 85th percentile speed appears inappropriately high.

The roadway design speed has been cited by some transportation professionals as a basis for limiting the maximum speed limit. The determination of design and realistic speed zones are two separate and distinct activities that should not be combined to establish speed zones that are unreasonable to motorists.

The design speed is selected to establish roadway design criteria such as width, alignment, and profile. Once the roadway is constructed, the driver operates at a speed he determines is reasonably safe and prudent, usually represented by the 85th percentile speed. The traffic and engineering investigation studies the operating conditions on the highway, reviewing the roadway characteristics and the speeds that motorists consider reasonable.

It is not usually necessary to reduce the speed zoning for restrictive geometric features, even if they are not readily perceived by motorists. Drivers are more observant of warning devices than speed regulation signs. It is more appropriate to install warning devices to improve driver perception of the restricted operating conditions, and to complete spot improvements if practical, while maintaining a maximum speed limit generally applicable to a longer roadway segment. Frequent revisions of speed zoning are usually not effective in influencing driver speed reduction.

103.04 Traffic And Engineering Investigation. Idaho statutes require that speed zones shall be determined on the basis of a traffic and engineering investigation. This investigation is the collection of traffic data as indicated below, with an engineering analysis of traffic data to determine a reasonable and prudent speed limit. It is very important that like conditions are treated equally on a statewide basis so that speed zones are consistent with the roadway conditions and enforcement can be reasonable and realistic for the motorist. If this is not done, it is often difficult to support and defend speed zoning to local officials, the courts, or the public when revisions or changes are requested.

It shall be speed zoning practice on the state highway system in Idaho to use guidelines contained in the MUTCD, applied in the following manner:

1. The 85th percentile speed shall be determined, supplemented by analysis of the pace speed and speed distribution data.

2. The traffic and engineering analysis should address the following factors and characteristics:

    a. Road surface characteristics, shoulder condition, grade, alignment, and sight distance

    b. Roadside development, culture, and friction

    c. Safe speed for curves or hazardous locations within the speed zone

    d. Parking practices and pedestrian and bicycle activity

    e. Reported accident experience for a minimum three-year, preferable five-year, period indicating number and type of accidents by location or accident rate compared to statewide average rates

3. The 85th percentile shall usually be accepted as representing a maximum speed that is reasonable and realistic to the motorist. It may be modified through analysis of the pace speed or speed distribution curve. The recommended maximum speed limit may be decreased below the 85th percentile speed based on analysis of factors noted in item 2 and justified in a traffic and engineering investigation.

The traffic and engineering investigation shall contain a summary of the purpose for the investigation, location, recommendation, a summary of the analysis, safety evaluation, and accident data. If speed transition zones are required due to a speed zone established by a local jurisdiction, an analysis referencing Traffic Manual transition zone requirements (see Section 156.03) will suffice for the investigation requirements. The investigation shall also include data on the speed characteristics and the other factors outlined in item 2. Note that there is existing PC software that can be used in place of the ITD-1625 form that will compile the speed data, make necessary calculations, and provide a tabular summary and a speed distribution graph for analysis and the investigation report. The investigation shall recommend a maximum speed limit and indicate the influence of this data on this maximum speed limit. The recommended speed limit shall be supported by the data contained in the traffic and engineering investigation and attached to the speed zoning worksheets. The investigation documents shall be bound with signature and seal affixed to the cover sheet.

103.05 Speed Studies. Speed zoning revisions may be necessary because of highway improvements, route and milepost changes, jurisdictional boundary revisions, roadside development, traffic operational changes, or requests. It is important that speed minute entries be updated promptly to reflect any revisions to the existing speed zoning.

On new highway alignments or major highway reconstruction projects, it is important that the speed study be done as soon as possible after the work has been completed and close to the time that the project is opened for traffic use. Speed minute entries are the basis for speed zone enforcement and court testimony. They are not effective until the speed is posted in conformance with an approved speed minute entry. Ideally, the permanent speed zoning minute entry should be completed and available to replace any construction speed zoning minute entries. Speed limits

posted in accordance with approved construction contract documents are also considered Temporary Speed Limits until speed studies are completed and Permanent Speed Limits are established.

Promptly acknowledge all requests for speed zone changes from outside the Department and advise the person or group making the request that a traffic and engineering investigation will be made. Complete the investigation in the field, with due consideration given to all pertinent factors involved. After the investigation is completed, contact the person or group from whom the original request was received and advise them of the results of the traffic study and the Department's recommendations.

For speed limits on the state highway system within city jurisdictions, follow the procedures contained in Administrative Policy A-12-07, "Speed Limits On the State Highway System Within City Jurisdictions." In an effort to study the effects of this policy, the following guidelines shall be adopted:

- A yearly follow up speed study shall be performed when a city disregards the recommendation of the district's speed study and invokes their right to adjust a state highway speed limit within their jurisdiction. At a minimum, the study will include speed information as described in item 1 of section 103.04 of this manual.

- By September each year, the follow up studies should be compiled and submitted to the State Traffic Engineer. This information will be compiled and reported to the Idaho Transportation Board annually.

- A copy of the study information should be sent to the respective city for their consideration.

The traffic and engineering investigation shall be based on a study of vehicle speeds and field investigation of the roadway-user characteristics. The order of preference for speed studies shall be as follows:

1. Compilation of a speed distribution curve, using radar equipment or speed-distance observations.

2. Use of existing average speed data, with mathematical estimation of the 85th percentile speed.

3. Car-following speed observations driving through the study area, logging the free-flow speed of other vehicles. Vehicle speeds and sample size shall be indicated in the study.

It is recognized that many rural speed zoning determinations will be constrained by the existing maximum speed limits, i.e., 55 mph and 65 mph. In these cases, it is acceptable to use the car-following field observation method to support that vehicles are traveling at or near the maximum speed limit. Special attention should be directed to suburban areas, community approaches, or roadside development areas where a reduced speed zone should be considered.

As speed limit signs must be placed within 50 ft (15.2 m) of locations shown on the speed minute entry, the District should verify sign locations prior to setting speed zone limits.

103.06 MINIMUM SPEED LIMITS. Idaho Code establishes provisions for setting minimum speed limits on the state highway system although these provisions normally have not been used as a means of raising the speed of slower vehicles. If minimum speeds are considered, the engineering study should take into account the 15th percentile speed or lower limit of the pace speed in selecting the minimum speed limit. A full traffic and engineering investigation as outlined in sections 103.04 and 103.05 should be prepared to substantiate a minimum speed recommendation.

103.07 Advisory Speed Limits. Advisory speed limits are posted with warning signs to provide drivers an advisory safe speed in negotiating a highway segment. Advisory safe speeds are one, but not the only, consideration in establishing maximum speed limits. The procedure for determining advisory safe speeds is outlined in section 165.03.

103.08 School Zones. Idaho does not have statutory speed limits for school zones and, accordingly, any local ordinances are not applicable to urban extensions of the state highway system. The traffic and engineering investigations noted above do address pedestrian/bicycle activity, and specific attention should be directed to school zones because of parental concerns and public perceptions of school safety. Speed zoning for school zones is only effective if the posted speed limits result in reasonable driver compliance. It is frequently more productive for driver compliance to use other school warning devices than unduly restrictive speed zoning. The speed zoning should consider the school zone in conjunction with other roadway features in establishing a speed limit that is acceptable to the driver. Recognizing the public visibility of school zones, it is necessary to work closely with local officials and school representatives in establishing a reasonable speed limit. Follow-up speed studies are usually necessary to document the reasonableness of school zone speed limits.

103.09 Differential Speed Limits. Idaho Code contains provisions for setting speed limits for various classes and types of vehicles

Pursuant to changes made to Idaho Code Section 49-654, differential speed limits have been enacted on interstate highways restricting vehicles with five (5) or more axles operating at a gross weight of more than 26,000 pounds to a maximum speed of 65 mph.

103.10 Work Zone Speeds. Often it is necessary to adjust the posted speed through construction or maintenance work zones. However, a reduced speed limit should be based on good judgment, experience, and evaluation of geometrics and should not be based merely on the idea that such action will somehow absolve the state or contractor of any responsibility in case of accidents.

- Prior to establishing reduced speed zones through construction or maintenance projects, some important considerations should be evaluated:

- Is there another feasible, and possibly better, alternative than reducing the speed limit? Generally, fewer accidents are likely to occur if traffic can be safely accommodated at the prevailing speed limit.

- Based on previous experience, can a reduced speed limit be enforced by a reasonable or normal level of law enforcement?

- If roadway alignment is one of the factors involved in the need to reduce speed, has safe speed been determined by sight distance determinations and by ball bank indicator measurement of horizontal curves?

- Can the reduction in speed be held to a maximum of 10 mph less than the normal posted speed?

Temporarily reduced speed zones are often appropriate due to roadway or lane constructions, temporary surfaces, alignment revisions, construction activity interference, and numerous other reasons. Rule 39.03.65 gives the District Engineer the authority to establish special speed regulations through construction and maintenance zones on the state highway system. This shall be accomplished by a letter signed by the District Engineer and directed to the District Lieutenant of the Idaho State Police and local law enforcement agencies, stating the special work zone speed limit, the location, the date the speed limit will become effective, and any special application (e.g., during working hours only, etc.). Copies of the letter shall be furnished to the Resident Engineer, district files, Traffic Section, and contractor. The work zone speed limit is not applicable until the letter has been signed and speed limits posted in conformance with the letter. When the speed zone is removed, a follow-up letter from the District Engineer should be sent to the law enforcement agencies, with copies to the Headquarters Traffic Section, informing them of the reversion to the previously approved speed limit or of the approval of a new speed minute entry.

Establishment of reduced construction speed zones on locally sponsored projects not on the state highway system shall be accomplished with approval of the appropriate governing body.

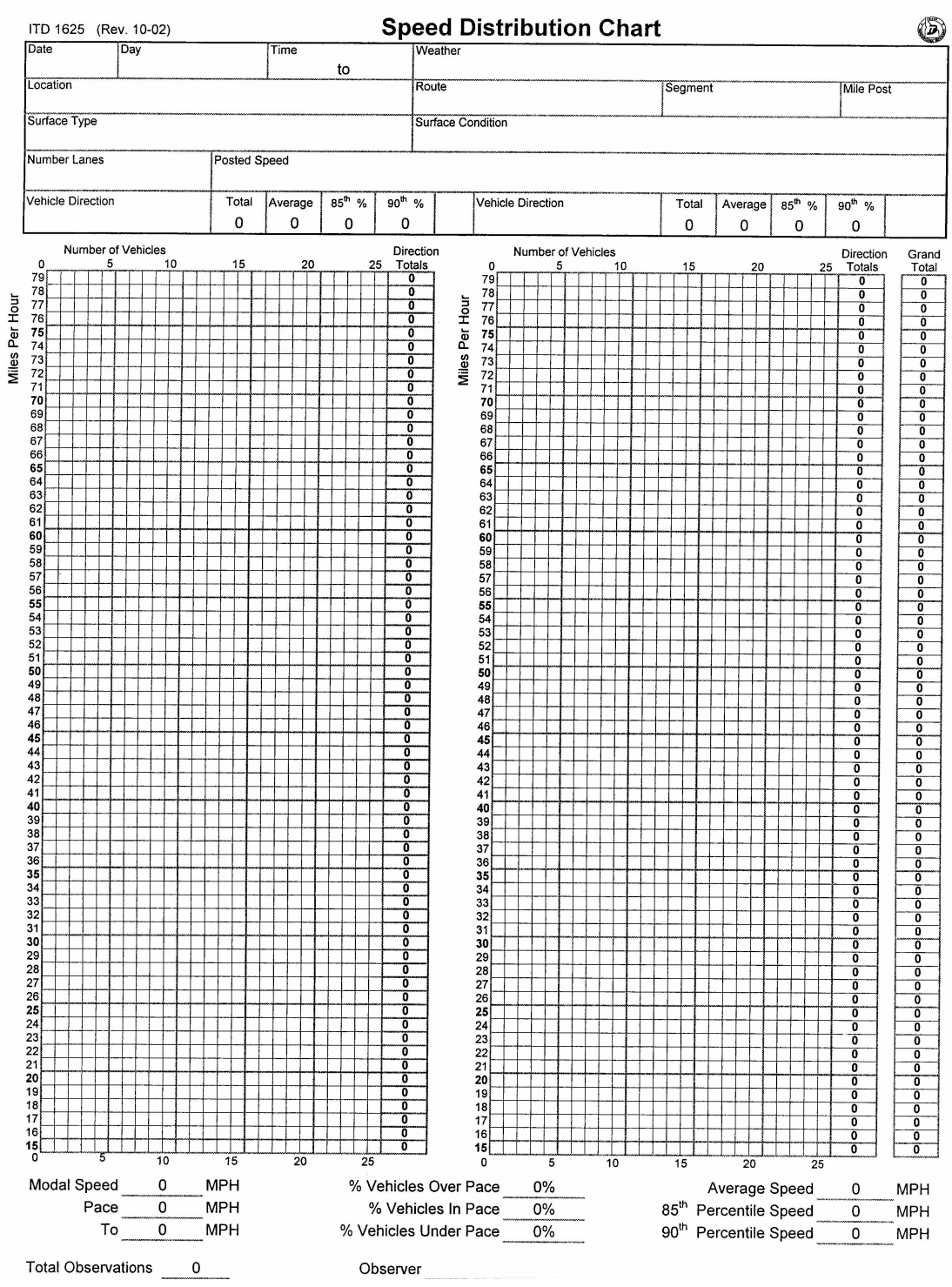
It is important that work zone speed be reasonable and elicit driver compliance. Frequently it is noted that drivers do not comply with overly restrictive work zone speeds. If driver compliance is not obtained, there should be selective enforcement, increased fines and/or penalties, additional project warning devices, or a change in the work zone speed limit. The limits of a reduced speed zone should be placed only where and when ~~as~~ the actual work zone construction operations interfere with through traffic and may be directionally independent from one another. The following undesirable practices have been noted in work zone speed zoning:

- Speed restrictions 24 hours a day, 7 days a week, when there are no road restrictions except during normal contractor working hours.

- Speed limits for an entire project when work affecting through traffic is being done only in a very limited area or when construction has been substantially completed.

- Speed limits that are not observed by motorists.

If speed zones are structured to fit the work conditions, the zones will be readily accepted by drivers and will result in better driver compliance where restrictive speeds are necessary.


ITD 1625 (Rev. 10-02)

Speed Distribution Chart

Date	Day	Time	Weather
		to	

Location	Route	Segment	Mile Post

Surface Type	Surface Condition

Number Lanes	Posted Speed

Vehicle Direction	Total	Average	85th %	90th %
	0	0	0	0

Vehicle Direction	Total	Average	85th %	90th %
	0	0	0	0

Number of Vehicles (0 5 10 15 20 25) — Direction Totals — Grand Total

Miles Per Hour: 79 78 77 76 **75** 74 73 72 71 **70** 69 68 67 66 **65** 64 63 62 61 **60** 59 58 57 56 **55** 54 53 52 51 **50** 49 48 47 46 **45** 44 43 42 41 **40** 39 38 37 36 **35** 34 33 32 31 **30** 29 28 27 26 **25** 24 23 22 21 **20** 19 18 17 16 **15**

Modal Speed	0	MPH	% Vehicles Over Pace	0%	Average Speed	0	MPH
Pace	0	MPH	% Vehicles In Pace	0%	85th Percentile Speed	0	MPH
To	0	MPH	% Vehicles Under Pace	0%	90th Percentile Speed	0	MPH

Total Observations 0 Observer

Figure 103.02-01 Speed Distribution Chart (ITD-1625) – Page 1

Definitions for Speed Distribution Chart

Direction: Direction vehicles are headed (i.e.: Northbound, Eastbound, etc.)

85th Percentile Speed: The speed at or below which 85% of the sample of free-flowing vehicles are traveling. On most roadways, the 85th percentile speed is one standard deviation, approximately 6 to 8 mph, above the mean speed.

The 85th percentile speed can be determined directly from the Speed Distribution Chart by counting from the top speed down the number of vehicles equaling 15% of the total vehicles observed. For example, if 100 vehicles were observed, count down 15 vehicles from the top to determine the 85th percentile speed.

90th Percentile Speed: The speed at or below with 90% of all traffic travels and above which 10% travel.

Annual Average Daily Traffic (AADT): The total traffic volume passing a point or segment of a highway facility in both directions for one year divided by the number of days in the year.

Mean (Average) Speed: The arithmetic mean of the speeds of all vehicles observed.

Median Speed: The speed which half the vehicles exceeded and half did not. This is the same as the 50th percentile speed

Modal Speed: The speed value occurring most frequently. In a frequency distribution of speed observed in a speed study, the modal speed would be the value with the highest frequency of observations.

Pace: The 10 mph range of travel speeds containing the largest number of observed vehicles. The pace can usually be determined by visual inspection of the Speed Distribution Chart. After determining the pace, it is useful to compute the percentage of vehicles in the pace, the percentage of vehicles over the pace, and the percentage of vehicles under the pace. The pace represents the range of speeds at which vehicles are traveling at a uniform rate with little overtaking and passing and minimal conflict between vehicles. It is desirable to have a large percentage of vehicles in the pace, and one of the objectives of speed zoning is to increase the percentage. A normal speed distribution will contain approximately 70% of the sample within the pace with 15% above and 15% below.

Spot Speed: The instantaneous measure of speed at a specific location on a roadway.

Standard Deviation: A measure of the spread of individual speeds around the mean. It is the square root of the sum of the squares of the deviations of the individual spot speeds from the mean divided by the number of measurements minus one, expressed mathematically as:

$$s = \sqrt{\frac{\Sigma(X_i - \bar{X})^2}{N-1}}$$

Remarks: _____

Figure 103.02-02 Speed Distribution Chart (ITD-1625) – Page 2

ITD-1791
12-01

SPEED ZONING WORKSHEET

NOTE: SPEED MINUTE ENTRIES MUST BE SUBMITTED FOR ALL EFFECTED SPEED ZONES !!!!!

ITEM NO.	ROUTE	BEGIN MILEPOST	END MILEPOST	DESCRIPTION	CITY(IES)	SPEED (M.P.H.)
1	US-95					
Segment Code						
2						
Segment Code						
3						
Segment Code						
4						
Segment Code						
5						
Segment Code						
6						
Segment Code						
7						
Segment Code						
8						
Segment Code						
9						
Segment Code						
10						
Segment Code						

(1) List revisions in the order they should appear in the milepost log.
(2) State system route number. (eg. 1-84B, SH-52, US-95)
(3) Beginning milepost, if available.
(4) Ending milepost, if available.
(5) Description Begin MP/Description End MP (Reference distance from nearest cross street listed in the milepost log)
(6) List all cities entered and/or exited that fall within milepost range.
(7) Proposed speed limit. Include a copy of all speed studies documenting proposed change.
(8) Include a copy of the city ordinance if documenting a proposed change within a city's limits.

Prepared by: _____ Date: _____

Community approval: _____ Date: _____

Figure 103.02-03 Speed Zoning Worksheet (ITD-1791)

SECTION 104.00 - PARKING

104.01 General. Signs shall be installed which prohibit or restrict the stopping, standing, or parking of vehicles where a traffic investigation indicates that such actions would be dangerous to those using the highway or where such actions unduly interfere with the free movement of traffic. [See Idaho Code sections 49-202(28), 49-660 and 49-661.]

104.02 Parking And Stopping Minute Entries. A Traffic Minute Entry is required on state highways to prohibit parking, standing and stopping at locations outside city limit boundaries. The minute entry is necessary before signs are erected, in accordance with Section 49-202(28), Idaho Code. Parking prohibition within the corporate limits of a community should be covered by a local ordinance and does not require state minute entry approval except for angle parking. Districts should submit recommendations for parking minute entries to the Traffic Section, along with all supporting data.

It should be noted that parking regulation signs have been relocated and removed without revision or revocation of the parking minute entries. At any time the parking signs are modified, the district must submit a letter to the Headquarters Traffic Section so the parking minute entry can be revised or revoked. Otherwise, the parking restriction is not enforceable.

104.03 Angle Parking Minute Entries. Angle parking is not permissible on the state highway system unless it is approved at a specific location. [See Idaho Code Section 49-661(3)] Angle parking is permissible only where the roadway is of sufficient width to permit angle parking without interfering with the free movement of traffic. All angle parking should be discouraged because of the hazardous backing maneuver and interference with traffic movement.

Generally, angle parking has been eliminated on most urban extensions except those locations permitted by minute entry. Efforts by community officials to reestablish angle parking should be thoroughly analyzed relative to highway purpose versus motorist needs. With the deletion of angle parking on the state highway system, the minute entry permitting angle parking shall be promptly revoked.

Submit recommendations for angle parking minute entries to the Headquarters Traffic Section, along with all supporting data.

Parking Regulations for Urban Extensions of the State Highway System, below, are provided as a guide to be followed in the determination of possible angle parking approval. Support a recommendation on angle parking approval or deletion by doing a complete study of parking characteristics, accident history, capacity evaluation, and observation of street operational problems.

PARKING REGULATIONS FOR URBAN EXTENSIONS OF THE STATE HIGHWAY SYSTEM

WIDTH ft (m)	ADT	NO. LANES	TYPE PARKING
LESS THAN 32 (9.8)	—	2	NONE
32 – 40 (9.8 - 12.2)	—	2	PARALLEL-ONE SIDE
40 – 60 (12.2 - 18.3)	8,000 OR LESS	2	PARALLEL-BOTH SIDES
40 – 60 (12.2 - 18.3)	OVER 8,000	4	NONE
60 – 80 (18.3 - 24.4)	2,000 OR LESS	2	ANGLE
60 – 80 (18.3 - 24.4)	2,000 - 20,000	4	PARALLEL
60 – 80 (18.3 - 24.4)	OVER 20,000	4	NONE
80 (24.4) OR GREATER	8,000 OR LESS	4	ANGLE
80 (24.4) OR GREATER	8,000 - 20,000	4	PARALLEL
80 (24.4) OR GREATER	OVER 20,000	4	NONE
80 (24.4) OR GREATER	OVER 20,000	6	NONE

104.04 Parking Studies. The modification or prohibition of parking on the state highway system requires good documentation of the existing parking characteristics, traffic operations, and accident statistics. Therefore, district recommendations for angle parking revisions or parking prohibitions should be fully covered, with data supporting the recommendations.

A number of parking studies can be conducted to analyze parking characteristics. Typical studies include parking inventories, space usage, parking demand, vehicle accumulation, accident analysis, street operational studies, and parking revenue data. Review the Manual of Traffic Engineering Studies for study methods and procedures before any data is collected. Complete and well-documented recommendations on parking are of prime importance in discussions with affected businesses or local officials.

SECTION 105.00 - TRANSPORTATION IMPACT STUDY

105.01 General. New land developments and expansions of existing developments can have a significant impact on the transportation system, particularly if there is not adequate planning and consideration of system improvements that may be needed. In accordance with ITD Policies A-12-01, "Right-of-Way Use Permits" and B-12-06, "Transportation Impact Study," and the current ITD Access Management: Standards and Procedures for Highway

Right-of-Way Encroachments, a Transportation Impact Study (TIS) that analyzes relevant impact issues may be required to ensure that the state highway system can satisfactorily accommodate a proposed development.

A TIS documents the extent of the impact of the proposed development on the highway system, including trips added, resulting level of service during AM and PM peaks, and the need for auxiliary lanes or other special capacity or safety features. Any required changes in traffic control, land use, access, pedestrian or bicycle usage must also be discussed.

A TIS shall be required when a new or an expanded existing development has direct access to the state highway system and adds a minimal number of new trips as described below.

- A "full" TIS shall be required for developments that will generate 100 or more new trips during the highway's peak hour, or the total added volume will equal or exceed 1,000 vehicles per day.

- A "minor" TIS shall be required for developments that will generate between 25 and 99 new trips during the highway's peak hour, or the total added volume will be from 250 to 999 vehicles per day.

- A TSI shall not be required for developments that will generate less than 25 added (new) trips during the highway's peak hour, or the total added volume will be less than 250 vehicles per day.

In some cases, as determined by ITD personnel, lesser traffic volumes may warrant a "full" TIS when roadway sections are already at or near capacity. If the proposal is in an air quality non-attainment zone, then some analysis for air quality shall also be required.

The TIS shall be prepared in accordance with the latest version of the Requirements for Transportation Impact Study available from the Headquarters Traffic Section. A TIS shall bear the stamp and signature of a professional engineer registered in the State of Idaho. The engineer that performs the study must regularly consult and coordinate with the Local Public Agency (LPA) and/or the ITD District Traffic Engineer to make sure that adequate detail to assess impacts is included in the TIS without requiring unnecessary data and reports that may not be justified by the magnitude of the development. The developer is responsible for hiring the engineer to perform the TIS.

The study will be submitted by the developer to the LPA and the Idaho Transportation Department for approval before any alterations on the State highway system will be allowed.